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SEQUENCE LISTING

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<110> Kenya Shitara  
Kazuyasu Nakamura  
Yuji Ohki

<120> Recombinant antibody against human insulin-like growth factors

<130> 5.1290

<150> PCT/JP04/014453

<151> 2004-09-24

<150> JP03/331509

<151> 2003-09-24

<160> 71

<170> PatentIn Ver. 2.0

<210> 1

<211> 411

<212> DNA

<213> Rattus norvegicus

<220>

<221> CDS

<222> (1)..(411)

<400> 1

atg gac atc agg ctc agc ttg gtt ttc ctt gtc ctt ttc ata aaa ggt 48  
Met Asp Ile Arg Leu Ser Leu Val Phe Leu Val Leu Phe Ile Lys Gly  
1 5 10 15

gtc cag tgt gag gta cac ctg gtg gaa tct ggg gga ggc tta gtg cag 96  
Val Gln Cys Glu Val His Leu Val Glu Ser Gly Gly Gly Leu Val Gln  
20 25 30

cct gga agg tcc ctg aaa ctc tcc tgt gca gcc tca gga ttc act ttc 144  
Pro Gly Arg Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe  
35 40 45

agt aac tat tac atg acc tgg gtc cgc cag gct cca acg aag ggt ctg 192  
Ser Asn Tyr Tyr Met Thr Trp Val Arg Gln Ala Pro Thr Lys Gly Leu  
50 55 60

gag tgg gtc gca tac att agt agt ggt ggt ggt agc act tac tat cga 240  
Glu Trp Val Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg  
65 70 75 80

gac tcc gtg aag ggc cga ttc act atc tcc aga gat aat gca aaa agc 288  
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Ser  
85 90 95

acc ctg tac ctg caa atg gac agt ctg agg tct gag gac acg gcc act 336  
Thr Leu Tyr Leu Gln Met Asp Ser Leu Arg Ser Glu Asp Thr Ala Thr  
100 105 110

tat tac tgt aca aca gag gac tat ggg tat tgg ttt gct tac tgg ggc 384  
Tyr Tyr Cys Thr Thr Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly  
115 120 125

caa ggc act ctg gtc act gtc tct tca 411

Gln Gly Thr Leu Val Thr Val Ser Ser  
130 135

<210> 2  
<211> 137  
<212> PRT  
<213> Rattus norvegics

<400> 2  
Met Asp Ile Arg Leu Ser Leu Val Phe Leu Val Leu Phe Ile Lys Gly  
1 5 10 15  
Val Gln Cys Glu Val His Leu Val Glu Ser Gly Gly Gly Leu Val Gln  
20 25 30  
Pro Gly Arg Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe  
35 40 45  
Ser Asn Tyr Tyr Met Thr Trp Val Arg Gln Ala Pro Thr Lys Gly Leu  
50 55 60  
Glu Trp Val Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg  
65 70 75 80  
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Ser  
85 90 95  
Thr Leu Tyr Leu Gln Met Asp Ser Leu Arg Ser Glu Asp Thr Ala Thr  
100 105 110  
Tyr Tyr Cys Thr Thr Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly  
115 120 125  
Gln Gly Thr Leu Val Thr Val Ser Ser  
130 135

<210> 3  
<211> 384  
<212> DNA  
<213> Rattus norvegics

<220>  
<221> CDS  
<222> (1)..(384)

<400> 3  
atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca 48  
Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr  
1 5 10 15  
gtc ata gtg tcc agt gga gaa att gtg ctc acc cag tct cca aca acc 96  
Val Ile Val Ser Ser Gly Glu Ile Val Leu Thr Gln Ser Pro Thr Thr  
20 25 30  
atg gct gca tct cca gga gag aag gtc acc atc acc tgc cgt gcc agc 144  
Met Ala Ala Ser Pro Gly Glu Lys Val Thr Ile Thr Cys Arg Ala Ser  
35 40 45  
tca agt gta agc tac atg cac tgg ttc cag cag aag tca ggc acc tcc 192  
Ser Ser Val Ser Tyr Met His Trp Phe Gln Gln Lys Ser Gly Thr Ser  
50 55 60

ccc aaa ccc tgg att tat ggc aca tcc aag ctg gct tct gga gtc cca 240  
 Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro  
 65 70 75 80

gat cgc ttc agt ggc agt ggg tct ggg acc tct tat tct ctc aca atc 288  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile  
 85 90 95

agc tcc atg gag gct gaa gat gct gct act tat tac tgt ctg cag agg 336  
 Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg  
 100 105 110

agt agt tac cca ccc acg ttt gga gct ggg acc aag ctg gaa ctg aaa 384  
 Ser Ser Tyr Pro Pro Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys  
 115 120 125

<210> 4  
 <211> 128  
 <212> PRT  
 <213> Rattus norvegics

<400> 4  
 Met Asp Phe Gln val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr  
 1 5 10 15

val Ile val Ser Ser Gly Glu Ile val Leu Thr Gln Ser Pro Thr Thr  
 20 25 30

Met Ala Ala Ser Pro Gly Glu Lys val Thr Ile Thr Cys Arg Ala Ser  
 35 40 45

Ser Ser val Ser Tyr Met His Trp Phe Gln Gln Lys Ser Gly Thr Ser  
 50 55 60

Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly val Pro  
 65 70 75 80

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile  
 85 90 95

Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg  
 100 105 110

Ser Ser Tyr Pro Pro Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys  
 115 120 125

<210> 5  
 <211> 5  
 <212> PRT  
 <213> Rattus norvegics

<400> 5  
 Asn Tyr Tyr Met Thr  
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<210> 6  
 <211> 17  
 <212> PRT  
 <213> Rattus norvegics

<400> 6

Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg Asp Ser Val Lys  
1 5 10 15

Gly

<210> 7  
<211> 9  
<212> PRT  
<213> Rattus norvegicus

<400> 7  
Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr  
1 5

<210> 8  
<211> 10  
<212> PRT  
<213> Rattus norvegicus

<400> 8  
Arg Ala Ser Ser Ser Val Ser Tyr Met His  
1 5 10

<210> 9  
<211> 7  
<212> PRT  
<213> Rattus norvegicus

<400> 9  
Gly Thr Ser Lys Leu Ala Ser  
1 5

<210> 10  
<211> 9  
<212> PRT  
<213> Rattus norvegicus

<400> 10  
Leu Gln Arg Ser Ser Tyr Pro Pro Thr  
1 5

<210> 11  
<211> 118  
<212> PRT  
<213> Artificial sequence

<220>  
<221> gene  
<222> (1)..(118)  
<223> Description of Artificial Sequence: synthetic protein

<400> 11  
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
20 25 30

Tyr Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg Asp Ser Val  
50 55 60  
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80  
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95  
Ala Arg Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr  
100 105 110  
Leu Val Thr Val Ser Ser  
115

<210> 12  
<211> 137  
<212> PRT  
<213> Artificial Sequence

<220>  
<222> (1)..(137)  
<223> Description of Artificial Sequence: synthetic protein

<400> 12  
Met Asp Ile Arg Leu Ser Leu Val Phe Leu Val Leu Phe Ile Lys Gly  
1 5 10 15  
Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln  
20 25 30  
Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe  
35 40 45  
Ser Asn Tyr Tyr Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu  
50 55 60  
Glu Trp Val Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg  
65 70 75 80  
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn  
85 90 95  
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val  
100 105 110  
Tyr Tyr Cys Ala Arg Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly  
115 120 125  
Gln Gly Thr Leu Val Thr Val Ser Ser  
130 135

<210> 13  
<211> 411  
<212> DNA  
<213> Artificial Sequence

<220>  
<221> CDS  
<222> (1)..(411)  
<223> Description of Artificial Sequence: synthetic DNA

<400> 13  
 atg gac atc agg ctc agc ttg gtt ttc ctt gtc ctt ttc ata aaa ggt 48  
 Met Asp Ile Arg Leu Ser Leu Val Phe Leu Val Leu Phe Ile Lys Gly  
 1 5 10 15

gtc cag tgt cag gtg cag ctg gtg gag tct ggg gga ggc gtc gta cag 96  
 Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln  
 20 25 30

cct ggg agg tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ttt 144  
 Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe  
 35 40 45

agc aac tat tac atg acc tgg gtc cgc cag gct cca ggg aag ggg ctg 192  
 Ser Asn Tyr Tyr Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu  
 50 55 60

gag tgg gtc gct tac att agt agt ggt ggt ggt agc act tac tat cga 240  
 Glu Trp Val Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg  
 65 70 75 80

gac tcc gtg aag ggc cgg ttc acc atc tcc aga gac aat tcc aag aac 288  
 Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn  
 85 90 95

acg ctg tat ctg caa atg aac agc ctg aga gcc gag gac acg gcc gta 336  
 Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val  
 100 105 110

tat tac tgt gcg aga gag gac tat ggg tat tgg ttt gct tac tgg ggc 384  
 Tyr Tyr Cys Ala Arg Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly  
 115 120 125

cag gga acc ctg gtc acc gtc tcc tca 411  
 Gln Gly Thr Leu Val Thr Val Ser Ser  
 130 135

<210> 14  
 <211> 106  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <222> (1)..(106)  
 <223> Description of Artificial Sequence: synthetic protein

<400> 14  
 Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
 1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Ser Ser Val Ser Tyr Met  
 20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr  
 35 40 45

Gly Thr Ser Lys Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser  
 50 55 60

Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu  
 65 70 75 80

Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg Ser Ser Tyr Pro Pro Thr  
85 90 95  
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
100 105

<210> 15  
<211> 128  
<212> PRT  
<213> Artificial Sequence

<220>  
<222> (1)..(128)  
<223> Description of Artificial Sequence: synthetic protein

<400> 15  
Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr  
1 5 10 15  
Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser  
20 25 30  
Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser  
35 40 45  
Ser Ser Val Ser Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro  
50 55 60  
Pro Lys Leu Leu Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro  
65 70 75 80  
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile  
85 90 95  
Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg  
100 105 110  
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
115 120 125

<210> 16  
<211> 396  
<212> DNA  
<213> Artificial Sequence

<220>  
<221> CDS  
<222> (1)..(396)  
<223> Description of Artificial Sequence: synthetic DNA

<400> 16  
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Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr  
1 5 10 15  
gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc 96  
Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser  
20 25 30  
ctg gct gtg tct cta ggc gag agg gcc acc atc aac tgc cgt gcc agc 144  
Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser  
35 40 45

tca agt gta agc tac atg cac tgg tac cag cag aaa cca gga cag cct	192
Ser Ser Val Ser Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro	
50 55 60	
cct aag ctg ctc att tac ggc aca tcc aag ctg gct tct ggg gtc cct	240
Pro Lys Leu Leu Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro	
65 70 75 80	
gac aga ttc agt ggc agc ggg tct ggg aca gat ttc act ctc acc atc	288
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile	
85 90 95	
agc agc ctg cag gct gaa gat gtg gca gtt tat tac tgt ctg cag agg	336
Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg	
100 105 110	
agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa	384
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys	
115 120 125	
cgt acg ctc gag	396
Arg Thr Leu Glu	
130	

<210> 17  
 <211> 411  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <221> CDS  
 <222> (1)..(411)  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 17	
atg gac atc agg ctc agc ttg gtt ttc ctt gtc ctt ttc ata aaa ggt	48
Met Asp Ile Arg Leu Ser Leu Val Phe Leu Val Leu Phe Ile Lys Gly	
1 5 10 15	
gtc cag tgt gag gtg cag ctg gtg gag tct ggg gga ggc gtc gta cag	96
Val Gln Cys Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln	
20 25 30	
cct ggg agg tcc ctg aga ctc tcc tgt gca gcc tct gga ttc acc ttt	144
Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe	
35 40 45	
agc aac tat tac atg acc tgg gtc cgc cag gct cca ggg aag ggg ctg	192
Ser Asn Tyr Tyr Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu	
50 55 60	
gag tgg gtc gct tac att agt agt ggt ggt ggt agc act tac tat cga	240
Glu Trp Val Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg	
65 70 75 80	
gac tcc gtg aag ggc cgg ttc acc atc tcc aga gac aat tcc aag aac	288
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn	
85 90 95	
acg ctg tat ctg caa atg aac agc ctg aga gcc gag gac acg gcc gta	336
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val	
100 105 110	



tat	tac	tgt	aca	aca	gag	gac	tat	ggg	tat	tgg	ttt	gct	tac	tgg	ggc	384
Tyr	Tyr	Cys	Thr	Thr	Glu	Asp	Tyr	Gly	Tyr	Trp	Phe	Ala	Tyr	Trp	Gly	
		115					120					125				

cag	gga	acc	ctg	gtc	acc	gtc	tcc	tca								411
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser								
	130					135										

<210> 18  
 <211> 411  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <221> CDS  
 <222> (1)..(411)  
 <223> Description of Artificial Sequence: synthetic DNA

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Met	Asp	Ile	Arg	Leu	Ser	Leu	Val	Phe	Leu	Val	Leu	Phe	Ile	Lys	Gly		
	1			5				10						15			

gtc	cag	tgt	gag	gtg	cag	ctg	gtg	gag	tct	ggg	gga	ggc	gtc	gta	cag	96
Val	Gln	Cys	Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Val	Val	Gln	
			20					25					30			

cct	ggg	agg	tcc	ctg	aga	ctc	tcc	tgt	gca	gcc	tct	gga	ttc	acc	ttt	144
Pro	Gly	Arg	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	
		35					40					45				

agc	aac	tat	tac	atg	acc	tgg	gtc	cg	cag	gct	cca	acg	aag	ggg	ctg	192
Ser	Asn	Tyr	Tyr	Met	Thr	Trp	Val	Arg	Gln	Ala	Pro	Thr	Lys	Gly	Leu	
	50					55					60					

gag	tgg	gtc	gct	tac	att	agt	agt	ggg	ggg	ggg	agc	act	tac	tat	cga	240
Glu	Trp	Val	Ala	Tyr	Ile	Ser	Ser	Gly	Gly	Gly	Ser	Thr	Tyr	Tyr	Arg	
	65				70			75							80	

gac	tcc	gtg	aag	ggc	cgg	ttc	acc	atc	tcc	aga	gac	aat	tcc	aag	aac	288
Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	
				85				90						95		

acg	ctg	tat	ctg	caa	atg	aac	agc	ctg	aga	gcc	gag	gac	acg	gcc	gta	336
Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	
			100					105					110			

tat	tac	tgt	aca	aca	gag	gac	tat	ggg	tat	tgg	ttt	gct	tac	tgg	ggc	384
Tyr	Tyr	Cys	Thr	Thr	Glu	Asp	Tyr	Gly	Tyr	Trp	Phe	Ala	Tyr	Trp	Gly	
		115					120					125				

cag	gga	acc	ctg	gtc	acc	gtc	tcc	tca								411
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser								
	130					135										

<210> 19  
 <211> 384  
 <212> DNA  
 <213> Artificial Sequence

<220>

<221> CDS  
 <222> (1)..(384)  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 19  
 atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca 48  
 Met Asp Phe Gln Val<sub>5</sub> Gln Ser Phe Ser Leu<sub>10</sub> Leu Leu Ile Ser Ile Thr<sub>15</sub>  
 1  
 gtc ata gtg tcc agt gga gac atc gtg ctc acc cag tct cca aca acc 96  
 Val Ile Val<sub>20</sub> Ser Ser Gly Asp Ile Val<sub>25</sub> Leu Thr Gln Ser Pro Thr Thr<sub>30</sub>  
 atg gct gtg tct cca ggc gag agg gcc acc atc acc tgc cgt gcc agc 144  
 Met Ala Val<sub>35</sub> Ser Pro Gly Glu Arg<sub>40</sub> Ala Thr Ile Thr Cys Arg Ala Ser<sub>45</sub>  
 tca agt gta agc tac atg cac tgg ttc cag cag aaa cca gga cag tcc 192  
 Ser Ser Val<sub>50</sub> Ser Tyr Met His<sub>55</sub> Trp Phe Gln Gln Lys<sub>60</sub> Pro Gly Gln Ser  
 cct aag ccc tgg att tac ggc aca tcc aag ctg gct tct ggg gtc cct 240  
 Pro Lys Pro Trp Ile Tyr<sub>70</sub> Gly Thr Ser Lys<sub>75</sub> Leu Ala Ser Gly Val Pro<sub>80</sub>  
 65  
 gac aga ttc agt ggc agc ggg tct ggg aca tct tat tct ctc acc atc 288  
 Asp Arg Phe Ser Gly<sub>85</sub> Ser Gly Ser Gly Thr<sub>90</sub> Ser Tyr Ser Leu Thr Ile<sub>95</sub>  
 agc agc ctg cag gct gaa gat gct gca act tat tac tgt ctg cag agg 336  
 Ser Ser Leu<sub>100</sub> Gln Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg<sub>110</sub>  
 105  
 agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa 384  
 Ser Ser Tyr<sub>115</sub> Pro Pro Thr Phe Gly<sub>120</sub> Gln Gly Thr Lys<sub>125</sub> Val Glu Ile Lys<sub>125</sub>  
 115

<210> 20  
 <211> 384  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <221> CDS  
 <222> (1)..(384)  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 20  
 atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca 48  
 Met Asp Phe Gln Val<sub>5</sub> Gln Ser Phe Ser Leu<sub>10</sub> Leu Leu Ile Ser Ile Thr<sub>15</sub>  
 1  
 gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc 96  
 Val Ile Val<sub>20</sub> Ser Ser Gly Asp Ile Val<sub>25</sub> Met Thr Gln Ser Pro Asp Ser<sub>30</sub>  
 ctg gct gtg tct cta ggc gag agg gcc acc atc aac tgc cgt gcc agc 144  
 Leu Ala Val<sub>35</sub> Ser Leu Gly Glu Arg<sub>40</sub> Ala Thr Ile Asn Cys Arg Ala Ser<sub>45</sub>  
 tca agt gta agc tac atg cac tgg tac cag cag aaa cca gga cag tcc 192  
 Ser Ser Val<sub>50</sub> Ser Tyr Met His<sub>55</sub> Trp Tyr Gln Gln Lys<sub>60</sub> Pro Gly Gln Ser<sub>60</sub>  
 50

cct aag ccc tgg att tac ggc aca tcc aag ctg gct tct ggg gtc cct	240
Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro	
65 70 75 80	
gac aga ttc agt ggc agc ggg tct ggg aca gat ttc act ctc acc atc	288
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile	
85 90 95	
agc agc ctg cag gct gaa gat gct gca act tat tac tgt ctg cag agg	336
Ser Ser Leu Gln Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg	
100 105 110	
agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa	384
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys	
115 120 125	

<210> 21  
 <211> 384  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <221> CDS  
 <222> (1)..(384)  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 21	
atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca	48
Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr	
1 5 10 15	
gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc	96
Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser	
20 25 30	
ctg gct gtg tct cta ggc gag agg gcc acc atc acc tgc cgt gcc agc	144
Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Thr Cys Arg Ala Ser	
35 40 45	
tca agt gta agc tac atg cac tgg tac cag cag aaa cca gga cag tcc	192
Ser Ser Val Ser Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Ser	
50 55 60	
cct aag ccc tgg att tac ggc aca tcc aag ctg gct tct ggg gtc cct	240
Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro	
65 70 75 80	
gac aga ttc agt ggc agc ggg tct ggg aca gat ttc act ctc acc atc	288
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile	
85 90 95	
agc agc ctg cag gct gaa gat gct gca act tat tac tgt ctg cag agg	336
Ser Ser Leu Gln Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg	
100 105 110	
agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa	384
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys	
115 120 125	

<210> 22  
 <211> 384

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> CDS  
 <222> (1)..(384)  
 <223> Description of Artificial Sequence: synthetic DNA

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<400> 22
atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca 48
Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr
1 5 10 15

gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc 96
Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser
20 25 30

ctg gct gtg tct cta ggc gag agg gcc acc atc acc tgc cgt gcc agc 144
Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Thr Cys Arg Ala Ser
35 40 45

tca agt gta agc tac atg cac tgg ttc cag cag aaa cca gga cag tcc 192
Ser Ser Val Ser Tyr Met His Trp Phe Gln Gln Lys Pro Gly Gln Ser
50 55 60

cct aag ccc tgg att tac ggc aca tcc aag ctg gct tct ggg gtc cct 240
Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro
65 70 75 80

gac aga ttc agt ggc agc ggg tct ggg aca gat ttc act ctc acc atc 288
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
85 90 95

agc agc ctg cag gct gaa gat gtg gca gtt tat tac tgt ctg cag agg 336
Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg
100 105 110

agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa 384
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
115 120 125
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<210> 23  
 <211> 384  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <221> CDS  
 <222> (1)..(384)  
 <223> Description of Artificial Sequence: synthetic DNA

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<400> 23
atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca 48
Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr
1 5 10 15

gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc 96
Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser
20 25 30

ctg gct gtg tct cta ggc gag agg gcc acc atc acc tgc cgt gcc agc 144
Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Thr Cys Arg Ala Ser
35 40 45
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tca agt gta agc tac atg cac tgg ttc cag cag aaa cca gga cag tcc	192
Ser Ser Val Ser Tyr Met His Trp Phe Gln Gln Lys Pro Gly Gln Ser	
50 55 60	
cct aag ccc tgg att tac ggc aca tcc aag ctg gct tct ggg gtc cct	240
Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro	
65 70 75 80	
gac aga ttc agt ggc agc ggg tct ggg aca tct tat tct ctc acc atc	288
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile	
85 90 95	
agc agc ctg cag gct gaa gat gct gca act tat tac tgt ctg cag agg	336
Ser Ser Leu Gln Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg	
100 105 110	
agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa	384
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys	
115 120 125	

<210> 24

<211> 384

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)..(384)

<223> Description of Artificial Sequence: synthetic DNA

<400> 24

atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca	48
Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr	
1 5 10 15	
gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc	96
Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser	
20 25 30	
ctg gct gtg tct cta ggc gag agg gcc acc atc aac tgc cgt gcc agc	144
Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser	
35 40 45	
tca agt gta agc tac atg cac tgg tac cag cag aaa cca gga cag tcc	192
Ser Ser Val Ser Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Ser	
50 55 60	
cct aag ccc ctc att tac ggc aca tcc aag ctg gct tct ggg gtc cct	240
Pro Lys Pro Leu Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro	
65 70 75 80	
gac aga ttc agt ggc agc ggg tct ggg aca tct tat tct ctc acc atc	288
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile	
85 90 95	
agc agc ctg cag gct gaa gat gtg gca gtt tat tac tgt ctg cag agg	336
Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg	
100 105 110	
agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa	384
Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys	
115 120 125	

<210> 25  
 <211> 384  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <221> CDS  
 <222> (1)..(384)  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 25  
 atg gat ttt cag gtg cag agt ttc agc ctc ctg cta atc agt atc aca 48  
 Met Asp Phe Gln Val Gln Ser Phe Ser Leu Leu Leu Ile Ser Ile Thr  
 1 5 10 15  
 gtc ata gtg tcc agt gga gac atc gtg atg acc cag tct cca gac tcc 96  
 Val Ile Val Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Asp Ser  
 20 25 30  
 ctg gct gtg tct cta ggc gag agg gcc acc atc aac tgc cgt gcc agc 144  
 Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser  
 35 40 45  
 tca agt gta agc tac atg cac tgg tac cag cag aaa cca gga cag tcc 192  
 Ser Ser Val Ser Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Ser  
 50 55 60  
 cct aag ccc tgg att tac ggc aca tcc aag ctg gct tct ggg gtc cct 240  
 Pro Lys Pro Trp Ile Tyr Gly Thr Ser Lys Leu Ala Ser Gly Val Pro  
 65 70 75 80  
 gac aga ttc agt ggc agc ggg tct ggg aca tct tat tct ctc acc atc 288  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile  
 85 90 95  
 agc agc ctg cag gct gaa gat gtg gca gtt tat tac tgt ctg cag agg 336  
 Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg  
 100 105 110  
 agt agt tac cca cca acg ttc ggc caa ggg acc aag gtg gaa atc aaa 384  
 Ser Ser Tyr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

<210> 26  
 <211> 118  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <221> gene  
 <222> (1)..(118)  
 <223> Description of Artificial Sequence: synthetic protein

<400> 26  
 Glu val Gln Leu val Glu Ser Gly Gly Gly val val Gln Pro Gly Arg  
 1 5 10 15  
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Tyr Met Thr Trp val Arg Gln Ala Pro Thr Lys Gly Leu Glu Trp val  
 35 40 45

Ala Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg Asp Ser Val  
50 55 60  
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80  
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95  
Thr Thr Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr  
100 105 110  
Leu Val Thr Val Ser Ser  
115

<210> 27  
<211> 106  
<212> PRT  
<213> Artificial Sequence

<220>  
<221> gene  
<222> (1)..(106)  
<223> Description of Artificial Sequence: synthetic protein

<400> 27  
Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
1 5 10 15  
Glu Arg Ala Thr Ile Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met  
20 25 30  
His Trp Phe Gln Gln Lys Pro Gly Gln Ser Pro Lys Pro Trp Ile Tyr  
35 40 45  
Gly Thr Ser Lys Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser  
50 55 60  
Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Leu Gln Ala Glu  
65 70 75 80  
Asp Ala Ala Thr Tyr Tyr Cys Leu Gln Arg Ser Ser Tyr Pro Pro Thr  
85 90 95  
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
100 105

<210> 28  
<211> 106  
<212> PRT  
<213> Artificial Sequence

<220>  
<221> gene  
<222> (1)..(106)  
<223> Description of Artificial Sequence: synthetic protein

<400> 28  
Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
1 5 10 15

Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Ser Ser Val Ser Tyr Met  
                   20                                  25                                  30  
 His Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Pro Leu Ile Tyr  
                   35                                  40                                  45  
 Gly Thr Ser Lys Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser  
                   50                                  55                                  60  
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Leu Gln Ala Glu  
                   65                                  70                                  75                                  80  
 Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg Ser Ser Tyr Pro Pro Thr  
                   85                                  90                                  95  
 Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
                   100                                  105

<210> 29  
 <211> 106  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <221> gene  
 <222> (1)..(106)  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 29  
 Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly  
   1                                  5                                  10                                  15  
 Glu Arg Ala Thr Ile Asn Cys Arg Ala Ser Ser Ser Val Ser Tyr Met  
                   20                                  25                                  30  
 His Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Pro Trp Ile Tyr  
                   35                                  40                                  45  
 Gly Thr Ser Lys Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Gly Ser  
                   50                                  55                                  60  
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Leu Gln Ala Glu  
                   65                                  70                                  75                                  80  
 Asp Val Ala Val Tyr Tyr Cys Leu Gln Arg Ser Ser Tyr Pro Pro Thr  
                   85                                  90                                  95  
 Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
                   100                                  105

<210> 30  
 <211> 150  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 30  
 aattaaccct cactaaaggg gaattcgcgg ccgctctccc attcagtaat cagtcctgca 60  
 gcactgcaca gactcctcac catggacatc aggctcagct tggttttcct tgtccttttc 120



ataaaagggtg tccagtgta ggtgcagctg 150

<210> 31  
<211> 148  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 31  
actccagccc cttccctgga gcctggcgga cccagggtcat gtaatagttg ctaaagggtga 60  
atccagaggc tgcacaggag agtctcaggg acctcccagg ctgtacgacg cctccccccag 120  
actccaccag ctgcacctga cactggac 148

<210> 32  
<211> 150  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 32  
tccaggggaag gggctggagt gggtcgctta cattagtagt ggtgggtgga gcacttacta 60  
tcgagactcc gtgaagggcc gggtcaccat ctccagagac aattccaaga acacgctgta 120  
tctgcaaata aacagcctga gagccgagga 150

<210> 33  
<211> 130  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 33  
gaccgatggg cccttggtgg aggctgagga gacggtgacc aggggttcct ggccccagta 60  
agcaaaccaa tacccatagt cctctctcgc acagtaatat acggccgtgt cctcggctct 120  
caggctgttc 130

<210> 34  
<211> 150  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 34  
aattaaccct cactaaaggg gaattctcca aacttcaagt acacaatgga ttttcaggtg 60  
cagagtttca gcctcctgct aatcagtatc acagtcatag tgtccagtg agacatcgtg 120

atgacccagt ctccagactc cctggctgtg 150

<210> 35

<211> 150

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic DNA

<400> 35

ccccagaagc cagcttggat gtgccgtaaa tgagcagctt aggaggctgt cctggtttct 60  
gctggtacca gtgcatgtag cttacacttg agctggcacg gcagttgatg gtggccctct 120  
cgcctagaga cacagccagg gagtctggag 150

<210> 36

<211> 150

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic DNA

<400> 36

atccaagctg gcttctgggg tccctgacag attcagtggc agcgggtctg ggacagattt 60  
cactctcacc atcagcagcc tgcaggctga agatgtggca gtttattact gtctgcagag 120  
gagtagttac ccaccaacgt tcggccaagg 150

<210> 37

<211> 72

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic DNA

<400> 37

gtaatacgac tcactatagg gcctcgagcg tacgtttgat ttccaccttg gtcccttggc 60  
cgaacgttgg tg 72

<210> 38

<211> 142

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic DNA

<400> 38

aattaaccct cactaaaggg gaattcgcg cgcctctccc attcagtaat cagtcctgca 60  
gcactgcaca gactcctcac catggacatc aggcctcagct tggttttcct tgcctttttc 120

ataaaaggtg tccagtgtga gg 142

<210> 39  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 39  
ccagcccctt cgttggagcc 20

<210> 40  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 40  
ggctccaacg aaggggctgg 20

<210> 41  
<211> 92  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 41  
gtacaacaga ggactatggg tattggtttg cttactgggg ccagggaacc ctggtcaccg 60  
tctcctcagc ctccaccaag ggcccatcgg tc 92

<210> 42  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 42  
ccagaagcca gcttggatgt gccgtaaatc cagggttag gggactgtcc 50

<210> 43  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 43  
accatcacct gccgtgccag 20

<210> 44  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 44  
gcacatccaa gctggcttct 20

<210> 45  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 45  
agaagccagc ttggatgtgc 20

<210> 46  
<211> 142  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 46  
aattaaccct cactaaaggg gaattctcca aacttcaagt acacaatgga ttttcaggtg 60  
cagagtttca gcctcctgct aatcagtatc acagtcatag tgtccagtgg agacatcgtg 120  
ctcaccagc ctccaacaac ca 142

<210> 47  
<211> 130  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 47  
tccagggtt aggggactgt cctggtttct gctggaacca gtgcatgtag cttacacttg 60  
agctggcacg gcaggatgatg gtggccctct cgcctggaga cacagccatg gttgttggag 120  
actgggtgag 130

<210> 48  
<211> 133  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 48  
gacagtcccc taagccctgg atttacggca catccaagct ggcttctggg gtccctgaca 60  
gattcagtgg cagcgggtct gggacatctt attctctcac catcagcagc ctgcaggctg 120  
aagatgctgc aac 133

<210> 49  
<211> 123  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 49  
gtaatacgac tcactatagg gcctcgagcg tacgtttgat ttccaccttg gtcccttggc 60  
cgaacgttgg tgggtaacta ctctctgca gacagtaata agttgcagca tcttcagcct 120  
gca 123

<210> 50  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 50  
aaggggaatt ctccaaactt caagtacaca 30

<210> 51  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 51  
agaagccagc ttggatgtgc cgtaaagtag gggcttaggg gactgtcctg 50

<210> 52  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: synthetic DNA

<400> 52  
ggcagcgggt ctgggacatc ttattctctc accatcagca gcctg 45

<210> 53  
<211> 69  
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic DNA

<400> 53

agaagccagc ttggatgtgc cgtaaattcca gggcttaggg gactgtcctg gtttctgctg 60

gaaccagtg

69

<210> 54

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<221> gene

<222> (1)..(108)

<223> Description of Artificial Sequence: synthetic protein

<400> 54

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
20 25 30

Tyr Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ser Tyr Ile Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Arg Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Glu Asp Tyr Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr  
100 105 110

Leu Val Thr Val Ser Ser  
115

<210> 55

<211> 106

<212> PRT

<213> Artificial Sequence

<220>

<221> gene

<222> (1)..(106)

<223> Description of Artificial Sequence: synthetic protein

<400> 55

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met  
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr  
35 40 45  
Gly Thr Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser  
50 55 60  
Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu  
65 70 75 80  
Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Arg Ser Ser Tyr Pro Pro Thr  
85 90 95  
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys  
100 105

<210> 56  
<211> 18  
<212> PRT  
<213> Homo sapiens

<400> 56  
Gly Pro Glu Thr Leu Ser Gly Ala Glu Leu Val Asp Ala Leu Gln Phe  
1 5 10 15  
Val Cys

<210> 57  
<211> 18  
<212> PRT  
<213> Homo sapiens

<400> 57  
Cys Leu Gln Phe Val Ala Gly Asp Arg Gly Phe Tyr Phe Asn Lys Pro  
1 5 10 15  
Thr Gly

<210> 58  
<211> 13  
<212> PRT  
<213> Homo sapiens

<400> 58  
Cys Tyr Phe Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser  
1 5 10

<210> 59  
<211> 14  
<212> PRT  
<213> Homo sapiens

<400> 59  
Cys Thr Gly Tyr Gly Ser Ser Ser Arg Arg Ala Pro Gln Thr  
1 5 10

<210> 60  
<211> 12  
<212> PRT  
<213> Homo sapiens

<400> 60  
Arg Arg Ala Pro Gln Thr Gly Ile Val Asp Glu Cys  
1 5 10

<210> 61  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 61  
Cys Thr Gly Ile Val Asp Glu Ala Ala Phe Arg Ser Ala Asp Leu Arg  
1 5 10 15

Arg

<210> 62  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 62  
Cys Asp Leu Arg Arg Leu Glu Met Tyr Ala Ala Pro Leu Lys Pro Ala  
1 5 10 15

Lys Ser Ala

<210> 63  
<211> 9  
<212> PRT  
<213> Homo sapiens

<400> 63  
Asp Leu Arg Arg Leu Glu Met Tyr Cys  
1 5

<210> 64  
<211> 10  
<212> PRT  
<213> Homo sapiens

<400> 64  
Cys Ala Pro Leu Lys Pro Ala Lys Ser Ala  
1 5 10

<210> 65  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 65  
Cys Thr Gly Ile Val Asp Glu Cys Cys Phe Arg Ser Cys Asp Leu Arg  
1 5 10 15

Arg

<210> 66  
<211> 35  
<212> DNA  
<213> Artificial sequence



<220>  
 <223> Description of Artificial Sequence: synthetic DNA  
 <400> 66  
 gatgaattca gaagcaatgg gaaaaatcag cagtc 35

<210> 67  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic DNA  
 <400> 67  
 cattgtcgac gcatgtcact cttcactcct ca 32

<210> 68  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic DNA  
 <400> 68  
 taaagaattc gcggccgctc tccc 24

<210> 69  
 <211> 49  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic DNA  
 <400> 69  
 taaagtcgac gggcccttgg tggaggctga agagacagtg accagagtg 49

<210> 70  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic DNA  
 <400> 70  
 taaagaattc tccaaacttc agtacacaa tgg 33

<210> 71  
 <211> 35  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic DNA

<400> 71  
taaagtcgac cgtacgtttc agttccagct tggtc

35